

What is claimed is:

1. A pressure-activated connector, comprising:
a connector frame having an opening disposed within said frame;
a flexible body portion disposed within said frame opening, the body portion
5 containing a plurality of conductive contacts disposed in a predetermined array in said
body portion and extending through said body portion, each contact having first and
second free ends that project past respective first and second surfaces of said body
portion, said body portion being formed from an elastomer which is reinforced by a
reinforcing member.
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2. The connector of claim 1, wherein each of said contacts is formed from a
wire filament.
3. The connector of claim 1, wherein each of said contacts is formed from a
15 single wire strand that is bent upon itself to form a dual strand contact, said strand being
bent upon itself at a radius coinciding with said contact first free end.
4. The connector of claim 1, where said frame member has a plurality of
cavities formed therein that provide passages through said frame member which are
20 filled with portions of said elastomer to anchor body portion to said frame member.
5. The connector of claim 3, where said frame member cavities are disposed
on opposite sides of said frame member and communicate with said frame opening.
- 25 6. The connector of claim 1, wherein said elastomer extends around inner
edges of said frame opening to define a recess in said connector frame for receiving an
opposing component therein.

7. The connector of claim 3, where said cavities disposed on one side of said frame member are aligned with and communicate with cavities disposed on the other side of said frame member.

5 8. The connector of claim 1, wherein said contacts are inserted into said body portion by stitching.

9. The connector of claim 1, wherein each of said contact first and second free ends extends away from said body portion respective first and second surfaces at
10 angles thereto of less than 90 degrees.

10. The connector of claim 1, wherein said reinforcing member includes a synthetic fabric extent.

15 11. The connector of claim 10, wherein said reinforcing member includes a fiberglass fabric extent.

12. The connector of claim 1, wherein said reinforcing member is a polymer film extent.
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13. The connector of claim 12, wherein said reinforcing member is a polyimide film extent.

14. The connector of claim 1, wherein said frame member includes an interior shoulder portion that extends around said frame member opening, and said
25 reinforcing member is attached to said frame member at said interior shoulder portion.

15. The connector of claim 1, wherein said reinforcing member is a woven

fabric extent and said elastomer encapsulates said fabric and extends through openings between threads of said woven fabric.

5 16. The connector of claim 1, wherein said reinforcing member is embedded within said elastomer.

10 17. The connector of claim 1, wherein said reinforcing member includes a fabric extent that is sandwiched between two layers of said elastomer, the elastomer layers defining first and second exterior surfaces of said body portion.

15 18. The connector of claim 1, wherein said body portion is formed by coextruding said reinforcing member with said elastomer.

15 19. The connector of claim 1, wherein said body portion is formed by laminating at least one elastomer layer to said reinforcing member.

20 20. The connector of claim 1, wherein each of said contacts includes a length of conductive wire that is bent upon itself and formed into an open loop, each open loop having opposing closed end and open end portions, the open loop closed end portion defining said contact first free end and the open loop open end portion defining said contact second free end, said contacts being held within said body portion approximately midway between said open loop closed and open end portions.

25 21. The connector of claim 1, wherein said first free ends of adjacent pairs of said contacts extend toward each other.

22. The connector of claim 1, wherein said contacts are disposed in a plurality of opening in said body portion.

23. The connector of claim 3, wherein said dual strand contacts are disposed in a plurality of openings in said body portion, each of the openings having a centerline and said dual strands being disposed on opposite sides of their corresponding opening centerlines.

24. The connector of claim 1, wherein said body portion includes a plurality of openings formed therein having a size such that at least said flexible body portion grips exterior surfaces of said contacts.

25. A land grid array ("LGA") connector, comprising:
a connector frame supporting a flexible body portion of the connector, the body portion containing a plurality of conductive contacts arranged in an array, each contact extending through said flexible body portion, each contact being formed from a single strand of conductive wire that is bent upon itself to form a dual strand, open loop contact that has opposing first and second ends which project past respective first and second surfaces of said body portion such that each contact has a pair of interconnected, redundant circuit paths that extend between said contact first and second ends and which extend through said connector flexible body portion.

26. The LGA connector of claim 25, wherein said connector frame is a rigid member.

27. The LGA connector of claim 25, wherein said flexible body portion includes an fabric-reinforced elastomeric portion.

28. The LGA connector of claim 25, wherein said flexible body portion is reinforced by a reinforcing member.

29. The LGA connector of claim 25, wherein said body portion includes a plurality of openings formed therein and extending through said body portion, each of said openings receiving a single contact.

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30. The LGA connector of claim 29, wherein said reinforcing member is a polymer film.

31. The LGA connector of claim 25, wherein said flexible body portion includes an extent of fabric that is encapsulated by an elastomer.

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32. The LGA connector of claim 28, wherein said reinforcing member is sandwiched between two elastomeric layers, each of the elastomeric layers forming said first and second surfaces of said flexible body portion.

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33. The LGA connector of claim 28, wherein said reinforcing member and said two elastomeric layers are laminated together.

34. The LGA connector of claim 28, wherein said reinforcing member includes a synthetic fabric extent that is coated with an elastomer.

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35. The LGA connector of claim 30, wherein said reinforcing member is a polyamide film.

36. The LGA connector of claim 34, wherein said fabric is a fiberglass fabric extent.

5 37. The LGA connector of claim 25, wherein each of said contacts is formed from an open loop of conductive wire, the first end of said contact having a closed loop end portion that is formed by bending said wire upon itself, and the second end of said contact including an open end portion with two free ends formed thereat.

10 38. The LGA connector of claim 25, wherein said contact first and second ends project away from said connector flexible body portion respective first and second surfaces at angles of less than 90 degrees.

15 39. The LGA connector of claim 38, wherein all of said contact first ends are arranged at a same angle with respect to said connector flexible body portion first surface.

20 40. The LGA connector of claim 25, wherein said connector frame includes an interior opening in which said flexible body portion is supported, and said connector frame further includes a plurality of cavities formed therein communicating with said connector frame interior opening, the cavities forming locations at which said connector flexible body portion engages said connector frame.

25 41. The LGA connector of claim 25, wherein said wire is bent upon itself at a radius of said contact first to form a contact point for contacting a first opposing circuit component and said free ends of said contact second end form a line for contacting a second opposing circuit component.

42. The LGA connector of claim 25, wherein each of said contacts is disposed in an opening formed in said body portion and oriented therein such that said dual strands lie on opposite sides of corresponding centerlines of said openings.

5 43. An electrical connector for providing a connection between two circuit components, comprising:

 a connector frame, the frame having an interior opening disposed therein, said frame extending completely around the interior opening such that interior edges of said frame define a perimeter of said interior opening;

10 a flexible body portion supported within said frame opening, the flexible body portion including an elastomeric portion, said flexible body portion further including a plurality of conductive contacts disposed in said flexible body portion that extend through said flexible body and which further terminate in opposing first and second ends that project past respective first and second surfaces of said body portion;

15 said frame having a plurality of anchoring cavities formed therein which communicate with said interior opening, said flexible body portion elastomeric portion extending into said anchoring cavities to anchor said flexible body portion to said connector frame.

20 44. The connector of claim 43, wherein said flexible body portion includes a reinforcement portion formed therewith.

 45. The connector of claim 44, wherein said reinforcing member is a fabric extent.

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 46. The connector of claim 44, wherein said reinforcing member is a film extent.

47. The connector of claim 43, wherein each of said contacts is formed from a length of conductive wire that is bent upon itself to form an open loop at one end thereof and a pair of redundant, conductive paths that extend between opposing ends of said contact.

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48. An elastomeric connector, comprising:

a flexible, elastomeric body portion having opposed top and bottom surfaces, a plurality of conductive contacts disposed in a predetermined array in said body portion and extending through said body portion, each contact having first and second free ends that respectively project past the top and bottom surfaces of said body portion, said body portion being formed from a reinforced elastomer.

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49. The connector of claim 48, wherein said elastomeric body portion includes a reinforcing member extending horizontally through said elastomeric body portion.

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50. The connector of claim 49, wherein said reinforcing member is embedded within said elastomer.

51. The connector of claim 49, wherein said reinforcing member includes a fabric extent that is encapsulated by said elastomer.

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52. The connector of claim 49, wherein said elastomeric body portion includes a reinforcing member laminated to said elastomer.

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53. The connector of claim 48, wherein said contacts provide redundant circuit paths.

54. The connector of claim 48, wherein said contacts are formed from lengths of conductive wires bent upon themselves.

5 55. The connector of claim 48, wherein said elastomeric body portion is formed from an elastomer having a sufficient durometer to retain said contacts in said body portion.

56. The connector of claim 55, wherein said durometer ranges from between about 40 to about 70 on the Shore A Scale.

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57. The connector of claim 1, wherein each of said contacts is a stamped and formed contact.

58. A connector comprising:
15 an insulative housing supporting a body portion, the body portion having a plurality of individual openings formed therein, each of the openings containing a contact therein, each of the contacts having first and second ends that project past edges of said body portion, the contacts being stitched into said body portion by way of an insertion tool.

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59. The connector of claim 58, wherein said housing and body portion are formed from the same material.

60. The connector of claim 58, wherein said body portion is formed from one
25 extent of a polyimide film.

61. The connector of claim 58, wherein each of said contacts includes a stamped and formed contact.